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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/649,206

08/27/2003

Bing Lu

FPC-104C

5143

7590

01/08/2004

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EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 01/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

10/649,206

### Applicant(s)

LU ET AL.

### Examiner

Ling-Siu Choi

### Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

1. This Application is a Continuation-in-part of US Serial No. 09/973,396. Claims 1-18 of Group I will be considered due to the previous claim election without traverse

#### ***Claim Objections***

2. Claims 1-18 are objected to because of the following informalities: (a) claims 2-3, 5-6, and 8-18, "A process" is suggested to be changed to --The process--; (b) claim 1, line 5, "compound is" is suggested to be changed to --compound being--; and (c) claim 1, line 8, "compound represented" is suggested to be changed to --compound being represented--.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

3. **The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:**

**A person shall be entitled to a patent unless --**

**(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.**

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4. Claims 1- 10 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaus et al. (US 4,347,158).

The present invention is directed to an olefin polymerization catalyst containing

A	a solid catalyst component	
	<b>copulverizing</b>	(a) magnesium compound
		(b) an aluminum compound
		(c) an organic electron donor containing at least one atom [oxygen, silicon, nitrogen, sulfur, and phosphorus atoms]
		(d) a titanium compound
B	an organoaluminum compound	

(summary of claim 1)

Kaus et al. et. a catalyst for olefin polymerization, the catalyst comprising (A) a catalyst component and (B) triethyl aluminum, wherein the catalyst component is prepared by the steps of (a) co-comminuting a **magnesium chloride** support base and **aluminum trichloride**, (b) co-comminuting anisole with the resulting product from step (a), (c) co-comminuting the resaulting product with **ethyl benzoate**, and (d) co-comminuting **titanium tetrachloride** with the resulting product from step (c) (Example 1-col. 10, line 35; claims 13-14). Kaus et al. further disclose that the preferred molar ratio of magnesium chloride to the magnesium compoiund is about 8 to 0.5-3.0; the molar ratio of magnesium chloride to ethyl benzoate is about 8-0.5-3.0; the molsar ratio

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of magnesium chloride to titanium tetrachloride is about 8-0.1-1.0 ( line 67 of col. 6 - line 2 of col. 7; col. 7, lines 39-43 and 52-56). Kaus et al. furthermore disclose that the molar ration of triethyl aluminum to titanium metal is 240/1 (col. 10, line 42). aus et al. also disclose that the polymerization of propylene is carried out at 70°C (col. 10, lines 44-45). Thus, the present claims are anticipated by the disclosure of Kaus et al..

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Matsuno et al. (JP 54-122387)

Matsuno et al. disclose a catalyst comprising (A) a solid component and (B) an organometallic compound, wherein the solid component is prepared by pulverizing (a) a reaction product of **magnesium** oxide and **aluminum** trichloride, (b) an **ester**, and (c) a **titanium** compound (abstract). Thus, the present claim is anticipated by the disclosure of Matsunno et al..

### *Claim Rejections - 35 USC § 103*

6. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaus et al. (US 4,347,158) in view of Lofgren et al. (US 4,673,661).

The disclosure of Kaus et al. is set forth in paragraph and is incorporated herein by reference.

The difference between the present claims and the disclosure of Kaus et al. is the requirement of the use of silane as an electron donor.

Lofgren et al. disclose an internal electron donor used in a Ziegler-Natta catalyst, the internal electron donor being an ester or a silane compound, wherein ester can be ethyl benzoate and the silane compound can be an alkylarylsilane (col. 2, lines 60-68 and col.3, lines 1-3). A conclusion can then be drawn that the use of ethyl benzoate is equivalent to and interchangeable with the use of alkylaryl as an internal electron donor. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace an ester with an silane in the disclosure of Kaus et al. with an expectation of success and thereby obtain the present invention.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is (703)305-0887.

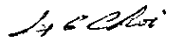
If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (703)308-2450.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is (703)308-2351.



Ling-Siu Choi

December 27, 2003